

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No.31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOSHITAKA NAKAMURA, SUMIO YAMADA and SEN MINEMURA

Appeal No. 1998-1467
Application 08/598,137

HEARD: June 8, 2000

Before JERRY SMITH, BARRETT and FRAHM, Administrative Patent Judges.

FRAHM, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiners' final rejection of claims 9 to 14, which constitute all of the pending claims in the application before us on appeal. Claims 1 to 8 have been canceled.

BACKGROUND

The subject matter on appeal is directed to a resonator-type surface-acoustic-wave (SAW)

filter for reducing the signal height of a spurious peak that causes the extra-passband suppressibility to deteriorate and occurs especially at a frequency outside a passband (see specification, page 1).

Appellants recognized that modification of conventionally equal reflector and inter-electrode pitches in accordance with given resonant frequencies provides higher extra-passband suppressibility by minimizing the presence of unwanted spurious peaks (see specification, pages 2 and 4).

Representative claim 9 is reproduced below:

9. A resonator-type surface-acoustic wave (SAW) filter comprising:

a plurality of SAW resonators connected in series and parallel with each other, each SAW resonator has a pair of terminals as well as reflectors having electrodes and an interdigital transducer having interdigital electrodes, wherein:

in at least one of said SAW resonators connected in series with another of said SAW resonators, a pitch between adjoining electrodes, which is referred to as an inter-electrode pitch θ_{SREF} , in said reflectors is different from a pitch between adjoining interdigital electrodes, which is referred to as an inter-electrode pitch θ_{SIDT} in said interdigital transducers; and

in each of said SAW resonators connected in parallel, a pitch between adjoining electrodes in said reflectors is the same as a pitch between adjoining interdigital electrodes in said interdigital transducers.

The following references are relied on by the examiner:

Hikita et al. (Hikita)	5,115,216	May 19, 1992
Takagi	JP 2-270,416	Nov. 5, 1990
Japanese Kokai Patent Application		
Hickernell et al. (Hickernell)	EP 530,547	Mar. 10, 1993
European Patent Application		

Claims 9 to 14 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Takagi in view of Hikita.

Claims 9 to 14 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Hickernell in view of Hikita.

Rather than repeat the positions of appellants and the examiner, reference is made to the Briefs and the Answer for the respective details thereof.

OPINION

For the reasons generally set forth by appellants in the Reply Brief (pages 4 to 6), and for the reasons which follow, we will reverse the rejections of claims 9 to 14 under 35 U.S.C. § 103. In reaching our conclusion on the issues raised in this appeal, we have carefully considered appellants' specification and claims, the applied prior art, and the respective viewpoints of appellants and the examiner. As a consequence of our review, we are in general agreement with appellants that the applied references would neither have taught nor suggested the resonator-type SAW filter of appellants' claims 9 to 14 on appeal. For the reasons which follow, we will reverse the decisions of the examiner rejecting claims 9 to 14 under 35 U.S.C. § 103 over either of Takagi, or Hickernell, in view of Hikita.

With respect to claims 9 to 13, appellants argue (Brief, page 4) that even if Takagi teaches

using a different pitch for inter-digital electrodes than for reflector electrodes for SAW resonators connected in series, and even if Hikita were modified with Takagi, the combination would fail to teach or suggest keeping the pitch between reflector electrodes the same as the pitch between inter-digital electrodes for SAW resonators connected in parallel, as required by representative claim 9 on appeal. Appellants make the same argument with respect to Hickernell, as opposed to Takagi (Reply Brief, page 6). We agree, and we find that this feature of using different pitch between reflector and inter-digital electrodes for series connected SAW resonators while using the same pitch for parallel connected SAW resonators is neither taught nor would have been suggested by Takagi, Hickernell, or Hikita, taken singly or in any combination thereof. Although we agree with the examiner that either Takagi or Hickernell teach employing different pitches between reflector electrodes and inter-digital electrodes, we find that either reference combined with Hikita fails to fairly teach or suggest that a different pitch be used between series connected SAW resonators and the same pitch be used between parallel connected SAW resonators. Thus, we are also in agreement with appellants (Brief, page 4) that the examiner has failed to explain why one would selectively employ the different pitch feature of either Takagi or Hickernell in the Hikita device, as required by representative claim 9 on appeal. As stated by appellants, "there is no teaching as to why one would use same pitch resonators in parallel but not in the [sic] series" (Reply Brief, page 6).

With respect to claim 14, we agree with appellants (Brief, page 8 and 11 to 12; Reply Brief,

page 6) that neither Takagi nor Hickernell teach or suggest the relationship between pitches as in claim 14 on appeal, specifically, that the pitch between series connected inter-digital electrodes (SIDT) is less than the pitch between series connected reflector electrodes (SREF), which is equal to the pitch between parallel connected reflector electrodes (PREF), which in turn is less than the pitch between parallel connected inter-digital electrodes (PIDT) (that is, the formula found at the last line of claim 14 on appeal). We are also in agreement with appellants (Reply Brief, page 5) that there is no disclosure in any of the applied references of using three different pitches between electrodes as required by the equation at the last line of claim 14 on appeal. Therefore, we cannot agree with the examiner (Answer, pages 4 to 8) that one of ordinary skill in the art looking at the SAW resonator structure of either Takagi or Hickernell would have been motivated to employ the ladder filter of Hikita in order to achieve the resonator-type SAW filter having varying pitches between series and parallel connected reflector and inter-digital electrodes as recited in appellants' claims 9 to 14 on appeal.

Accordingly, we cannot sustain the rejection of claims 9 to 14 under 35 U.S.C. § 103.

CONCLUSION

The decision of the examiner rejecting claims 9 to 14 under 35 U.S.C. § 103 over Takagi in view of Hikita is reversed.

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Application 08/598,137

The decision of the examiner rejecting claims 9 to 14 under 35 U.S.C. § 103 over Hickernell in view of Hikita is reversed.

REVERSED

JERRY SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
LEE E. BARRETT)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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ERIC FRAHM)	
Administrative Patent Judge)	

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